

September 1968 No.6 Price 2/6

The Magazine of the Institute of Contemporary Arts

SERENDIPITY

Is everything or anything here art -
and if not, why not?

We all benefit by asking ourselves this kind of question,
and no more enjoyable way of provoking it can be
imagined than an hour in this intriguing lively
and thought-provoking show.

Nigel Gosling, The Observer

*me
Toynston
for the*

porary Arts Magazine. First I thought
t of the exhibition, or a cartoon making
other
ords, or
ere
mple
ve

Anyone unable to visit the
exhibition, or driven prematurely
away from it by some of the noisier
pieces on display, would do well
to get the 25s catalogue and
information conspectus of the
exhibition and its technical and
theoretical background.

The Times Literary Supplement

*thing that occurred
visually
involved
there*

But as unique show of
fresh ideas about trends
in contemporary art-making,
this is a stimulating
exhibition for everyone.
Daily Telegraph

ossible. Plus the fact that it took 1,095
en hundered press invitations were sent out,
three thousand people
private views.

computer may
uch to enlarge
art as to
ly our knowledge
rt.

erson, Art and Artists

*at hand I had
go on with. So what I have*

This is an exhibition with a
tremendously interesting theme.
Guy Brett, The Times

It is, therefore, a huge pleasure to report that the big machine
exhibition at the ICA, Cybernetic Serendipity - is a complete success
and well worth its three years planning by Jasia Reichardt. The show
provides information which we need, succinctly and entertainingly.
Bryan Robertson, Spectator

An international exhibition exploring
and demonstrating relationships
between technology and creativity.

The idea behind this venture is to show creative forms
engendered by technology. To present an area of
activity which manifests artists' involvement with
science, and the scientists' involvement with the arts.
To show the links between the random systems employed
by artists, composers, and poets, and those involved
in the use of cybernetic devices.

The exhibition is divided into three sections:

1. Computer generated graphics, computer animated
films, computer composed and played music, and
computer verse and texts.
2. Cybernetic devices as works of art, cybernetic
environments, remote control robots, and painting
machines.
3. Machines demonstrating the uses of computers and
an environment dealing with the history of cybernetics.

There will be lectures on Tuesdays and Thursdays
relating to the theme of the exhibition.

There will also be film shows of films either made
with the aid of computers or dealing with the
relevance of computer technology to the humanities,
the arts, and communications generally.

During the course of the Cybernetic Serendipity
exhibition the opening hours will be as follows:

Tuesdays, Thursdays, Saturdays 11-6
Wednesdays, Fridays 11-9
Sundays 2-6
Mondays closed

Admission 8/-
ICA members 4/-
Children free (special terms for school parties
by arrangement with Leslie Stack)
Admission to films in the cinema 2/6

CYBERNETIC GENERALITY FIRST PAGES

This typeface which avoids curves and diagonals was developed by Epps and Evans at the National Physical Laboratory (Division of Computer Science) and is used for machine recognition.

INSTITUTE OF CONTEMPORARY ARTS
Nash House The Mall London S.W.1

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Director	Michael Kustow
Associate Director	Dorothy Morland
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Assistant Director	Jasia Reichardt

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TRIBUTES TO HERBERT READ

Change of date.

An evening at the ICA devoted to tributes to our late President, Sir Herbert Read, will be held on November 28th, and not on October 24th as announced in the August magazine.

EXHIBITION OF BRITISH PAINTERS

at Macys, New York
September 3 - 21

Macys of New York has invited the ICA to organise an exhibition of young British artists in their gallery to coincide with the Festival of Britain. The following artists will be shown: Peter Blake, Patrick Caulfield, David Hockney, John Hoyland, Paul Huxley, Allen Jones, Mark Lancaster, David Leverett, Patrick Proctor, Peter Phillips, Peter Sadgley, Richard Smith, Michael Vaughan, John Walker, David Oxtoby.

The exhibition has been organised by Mario Amaya and will be officially opened by Sir Roland Penrose on 3rd September.

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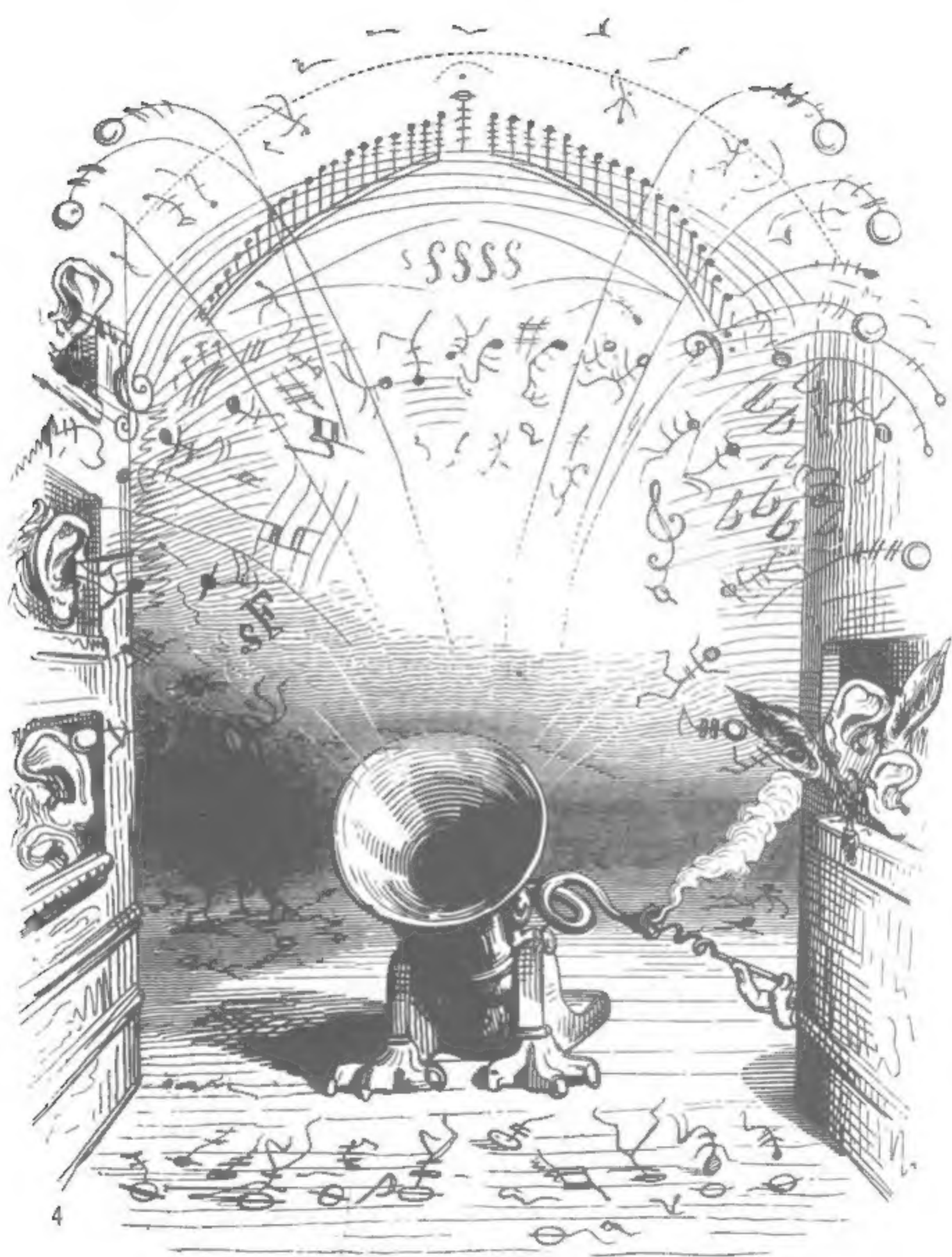


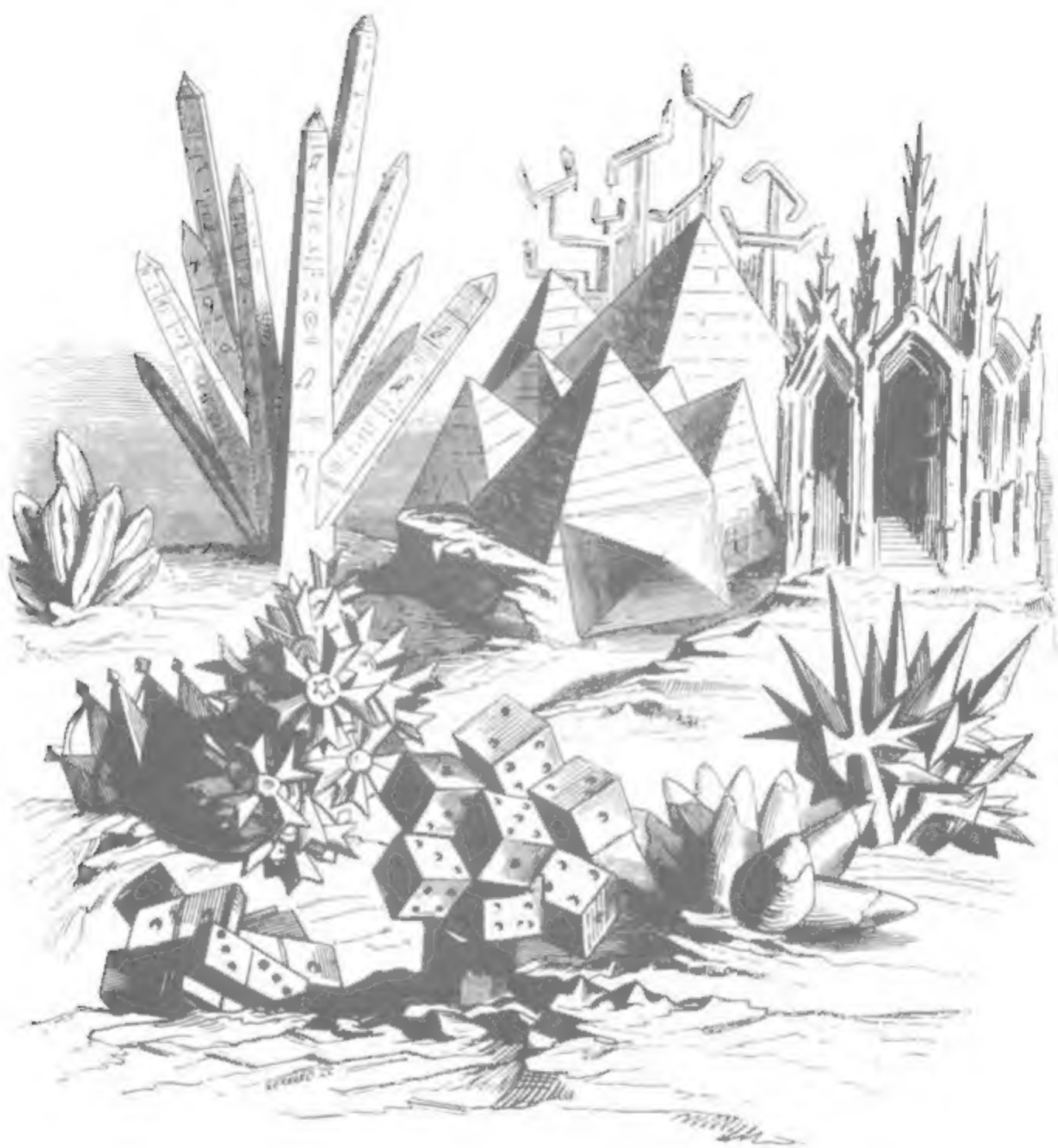
MAN-MACHINE SYMBIOSIS

Humanizing machines and mechanizing humans are cross trends that are sure to occur in the future, but the extent to which man and machine will be united is uncertain. Computers exist which can learn, remember, see, seek goals, reason, walk, sing on key, talk, be irritable, play games, grasp, adapt to an environment and even design improvements in themselves. While artificial organs made possible by miniature electronic components are being used in the human body, man-like computers may one day contain plasma circulating through a viscera-like envelope, allowing them to be self-healing. Direct man-machine communication is also being explored for the transfer of thoughts instead of words.

The Magazine of the Institute of Contemporary Arts
No.6, September 1968

This issue edited by Jasja Reichardt
Designed by Ann Hildred
Cover by Norman Toynton
Printed by Oval Press





Grandville's anticipation, in 1867, of new music
and advanced sculpture

THE LAW
by Robert M. Coates

(The law of averages applies to all randomly moving objects whether in kinetic theory or in city traffic. This story from The New Yorker magazine raises in fictional form the question of the meaning of a statistical law.)

The first intimation that things were getting out of hand came one early-fall evening in the late nineteen-forties. What happened, simply, was that between seven and nine o'clock on that evening the Triborough Bridge had the heaviest concentration of outbound traffic in its entire history.

This was odd, for it was a weekday evening (to be precise, a Wednesday), and though the weather was agreeably mild and clear, with a moon that was close enough to being full to lure a certain number of motorists out of the city, these facts alone were not enough to explain the phenomenon. No other bridge or main highway was affected, and though the two preceding nights had been equally balmy and moonlit, on both of these the bridge traffic had run close to normal.

The bridge personnel, at any rate, was caught entirely unprepared. A main artery of traffic, like the Triborough, operates under fairly predictable conditions. Motor travel, like most other large-scale human activities, obeys the Law of Averages - that great, ancient rule that states that the actions of people in the mass will always follow consistent patterns - and on the basis of past experience it had always been possible to foretell, almost to the last digit, the number of cars that would cross the bridge at any given hour of the day or night. In this case, though, all rules were broken.

The hours from seven till nearly midnight are normally quiet ones on the bridge. But on that night it was as if all the motorists in the city, or at any rate a staggering proportion of them, had conspired together to upset tradition. Beginning almost exactly at seven o'clock, cars poured onto the bridge in such numbers and with such rapidity that the staff at the toll booths was overwhelmed almost from the start. It was soon apparent that this was no momentary congestion, and as it became more and more obvious that the traffic jam promised to be one of truly monumental proportion, added details of police were rushed to the scene to help handle it.

Cars streamed in from all directions - from the Bronx approach and the Manhattan one, from 125th Street and

the East River Drive. (At the peak of the crush, about eight-fifteen, observers on the bridge reported that the drive was solid line of car headlights as far south as the bend at Eighty-ninth Street, while the congestion crosstown in Manhattan disrupted traffic as far west as Amsterdam Avenue.) And perhaps the most confusing thing about the whole manifestation was that there seemed to be no reason for it.

Now and then, as the harried toll-booth attendants made change for the seemingly endless stream of cars, they would question the occupants, and it soon became clear that the very participants in the monstrous tieup were as ignorant of its cause as anyone else was. A report made by Sergeant Alfonse O'Toole, who commanded the detail in charge of the Bronx approach, is typical. "I kept askin' them," he said, "'Is there night football somewhere that we don't know about? Is it the races you're goin' to?'" But the funny thing was half the time they'd be askin' me. 'What's the crowd for, Mac?' they would say. And I'd just look at them. There was one guy I mind, in a Ford convertible with a girl in the seat beside him, and when he asked me, I said to him, 'Hell, you're in the crowd, ain't you?' I said. 'What brings you here?' And the dummy just looked at me. 'Me?' he says. 'I just come out for a drive in the moonlight. But if I'd known there'd be a crowd like this...' he says. And then he asks me, 'Is there any place I can turn around and get out of this?'" As the Herald Tribune summed things up in its story next morning, it "just looked as if everybody in Manhattan who owned a motorcar had decided to drive out on Long Island that evening."

The incident was unusual enough to make all the front pages next morning, and because of this, many similar events, which might otherwise have gone unnoticed, received attention. The proprietor of the Aramis Theatre, on Eighth Avenue, reported that on several nights in the recent past his auditorium had been practically empty, while on others it had been jammed to suffocation. Lunchroom owners noted that increasingly their patrons were developing a habit of making runs on specific items; one day it would be the roast shoulder of veal with pan gravy that was ordered almost exclusively, while the next everyone would be taking the Vienna loaf, and the roast veal went begging. A man who ran a small notions store in Bayside revealed that over a period of four days two hundred and seventy-four successive customers had entered his shop and asked for a spool of pink thread.

These were news items that would ordinarily have gone into the papers as fillers or in the sections reserved

for oddities. Now, however, they seemed to have a more serious significance. It was apparent at last that something decidedly strange was happening to people's habits, and it was as unsettling as those occasional moments on excursion boats when the passengers are moved, all at once, to rush to one side or the other of the vessel. It was not till one day in December when, almost incredibly, the Twentieth Century Limited left New York for Chicago with just three passengers aboard that business leaders discovered how disastrous the new trend could be, too.

Until then, the New York Central, for instance, could operate confidently on the assumption that although there might be several thousand men in New York who had business relations in Chicago, on any single day no more - and no less - than some hundreds of them would have occasion to go there. The play producer could be sure that his patronage would sort itself out and that roughly as many persons would want to see the performance on Thursday as there had been on Tuesday or Wednesday. Now they couldn't be sure of anything. The Law of Averages had gone by the board, and if the effect on business promised to be catastrophic, it was also singularly unnerving for the general customer.

The lady starting downtown for a day of shopping, for example, could never be sure whether she would find Macy's department store a seething mob of other shoppers or a wilderness of empty, echoing aisles and unoccupied salesgirls. And the uncertainty produced a strange sort of jitteriness in the individual when faced with any impulse to action. "Shall we do it or shan't we?" people kept asking themselves, knowing that if they did do it, it might turn out that thousands of other individuals had decided similarly; knowing, too, that if they didn't, they might miss the one glorious chance of all chances to have Jones Beach, say, practically to themselves. Business languished, and a sort of desperate uncertainty rode everyone.

At this juncture, it was inevitable that Congress should be called on for action. In fact, Congress called on itself, and it must be said that it rose nobly to the occasion. A committee was appointed, drawn from both Houses and headed by Senator J. Wing Sloop (R.) of Indiana, and though after considerable investigation the committee was forced reluctantly to conclude that there was no evidence of Communist instigation, the unconscious subversiveness of the people's present conduct was obvious at a glance. The problem was what to do about it. You can't indict a whole nation, particularly on such vague grounds as these were. But, as Senator Sloop boldly

pointed out, "You can control it," and in the end a
... effort was devoted upon,
... to make people work to ... the quote Senator
... at times, the homely, averageness
of the American way of life."

... of the ...'s investigations, it had
... that the law of
... into the body of
... through the upholders of
... he oversight was
... amendment
... upholding it.
... people were required to be average,
... they were
... activities
... by the plan, a person
... for example,
... and he could
... across his
... to the hours
between ten o'clock and noon on Mondays.

The law, of course, had its disadvantages. It had a
... effect on theatre parties, among other social
... and the cost of ... it was unbelievably
... In the end, too, so many amendments had to be
... to it ... gentlemen to
... with them to
... letter the
... the courts were
... confronted
with violations.

In the end, though, the law did its purpose, for
... it is true, but still
adequately ... a return to that average existence that
... would have been
... a year or so later ... reports had not
... from the backwoods. It seemed that there,
... had hitherto been considered to be marginal areas,
a strange wave of prosperity was making itself felt.
Tennessee mountaineers were buying Packard convertibles,
and jeans, ~~Reebok~~ reported that in the Ozarks their sales
of luxury items had gone up nine hundred per cent. In
the scrub sections of Vermont, men who formerly had barely
been able to scratch a living from their rock-stream acres
were now sending their daughters to Europe and ordering
... from New York. It appeared that the law
of Diminishing Returns was going haywire, too.

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by Daphne Oran

Oramics is a method of converting graphic information into sound. It does not use sine, square, or sawtooth generators and it does not come into the category. Except for the fact that the "musical notation" which is produced is computer-generated, it is not a computer-generated musical score. It is a computer-generated musical score which is then played by a human being, who may or may not be a computer. It is a computer-generated musical score which is then played by a human being, who may or may not be a computer. It is a computer-generated musical score which is then played by a human being, who may or may not be a computer. So I've thought it best just to call my invention Oramics.

[illegible]

10

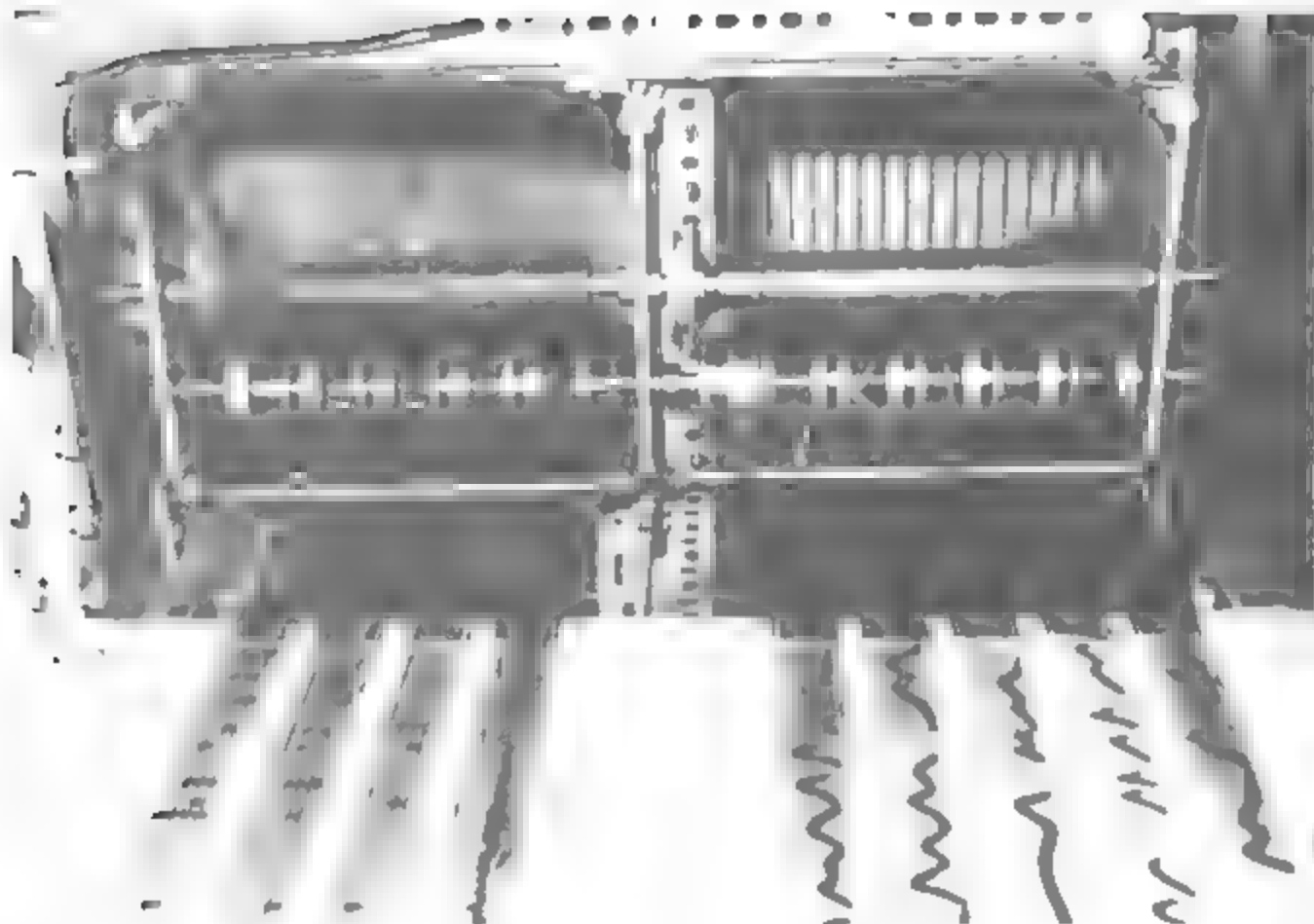


g special ink which can easily be
 The qdgs can not on
 the composer to draw in,
 the qdgs which make the
 than Electronic Music.
 therefore only act the composer who feel
 by and one exactly what
 he wants - and that's hard work! For those who would
 the composer to do them for them, there
 the nation center table and the digital composer
 they can then sit back and have music by the mile!
 But not for me!

haps Tristram Cary and the Electronic Music Review
 would allow Dramics to adopt this apt and fervent
 prayer: "O Lord, (as prophesies he) 'I would
 Recalcitrant Holes and all Ye Assembled Nand Gates
 Keep Your Appointed Places - under my thumb'.



Programing



1



2



3



GENERATIVE AESTHETICS PROJECTS

by Max Bense

B. Generative Aesthetics, we understand all the operations, rules and theorems which, if applied to an unordered set of material elements, can produce aesthetic situations. In this sense Generative Aesthetics is an analogue of Generative Grammar, the former building aesthetic structures as the other builds sentences of a scheme of grammar.

Obviously, to make the aesthetic synthesis possible, each system of Generative Aesthetics must be preceded by a process of analytical aestheticisation, i.e. the investigation of existing aesthetic structures in a given art object. According to this aesthetic investigation a generative system is prepared. This preparatory information must be describable in abstract terms. Then, according to the system, it can be applied to a set of material elements and thus be realised.

At the moment there are four possibilities of abstract description of aesthetic structures: either, 1. the relations of generative structures, 2. the rules to generate aesthetic structures; the most common is, 3. the making of a generative system of symbols and symbols, and the method, 4. the making of topological descriptions, which are immediately of generative orientation.

The present procedure takes use of the traditional notion of 'form', which is not only open to science. The 'form' (as, for example, in the case of an art object) are the 'formal' elements of the aesthetic situation. As, for example, the 'form' of the interpreter and, in the same sense, the 'form' of the process of aestheticisation, are not part of the 'form' of an art object. The 'form' is a generative system, which is necessary for the aestheticisation of a set of material elements.

The metric procedure, which is abstract, formal, generative and non-interpretive, of the art-theories of proportion, which are the 'forms' which have the character of 'distance', of 'interval', of 'continuity', arches above all the metric elements of an art object, that is, the composition of the 'image', of the 'figure', or of the 'Form'.

The aesthetic situation is based on the basis of the concept of 'figure' or 'image' at the probability of the appearance of elements or characteristics, which are capable of numerical evaluation, generates also a the micro-aesthetic structure of an art object or art. It does not prepare the aesthetic situation or situation.

ONE THEORETICAL ARTIST AND HIS WORK
by Petar Milojevic

(Petar Milojevic is a Yugoslav artist who has been working in the field of computer art for several years. He has been working with the computer since 1968, when he was introduced to the field by a friend who was working with the computer. He has since then been working with the computer and has produced a number of works which have been exhibited in various galleries and museums. His works are often characterized by their use of computer graphics and their exploration of the relationship between the human and the machine. He has also been involved in the development of computer art as a discipline, and has been a member of the Yugoslav Association of Computer Artists since 1975. His most recent work, 'The Use of the Computer in Art', was exhibited at the 1978 Venice Biennale.)

Art is a feeling like love and hunger, unidentified by
the public inevitably leaves a gap.

When we try to explain it, we are forced to use
within the same terms.

Do we know what 'Computer - Art' is?

Computer-Art is a convenient word for combining two
place between the artist and critic.

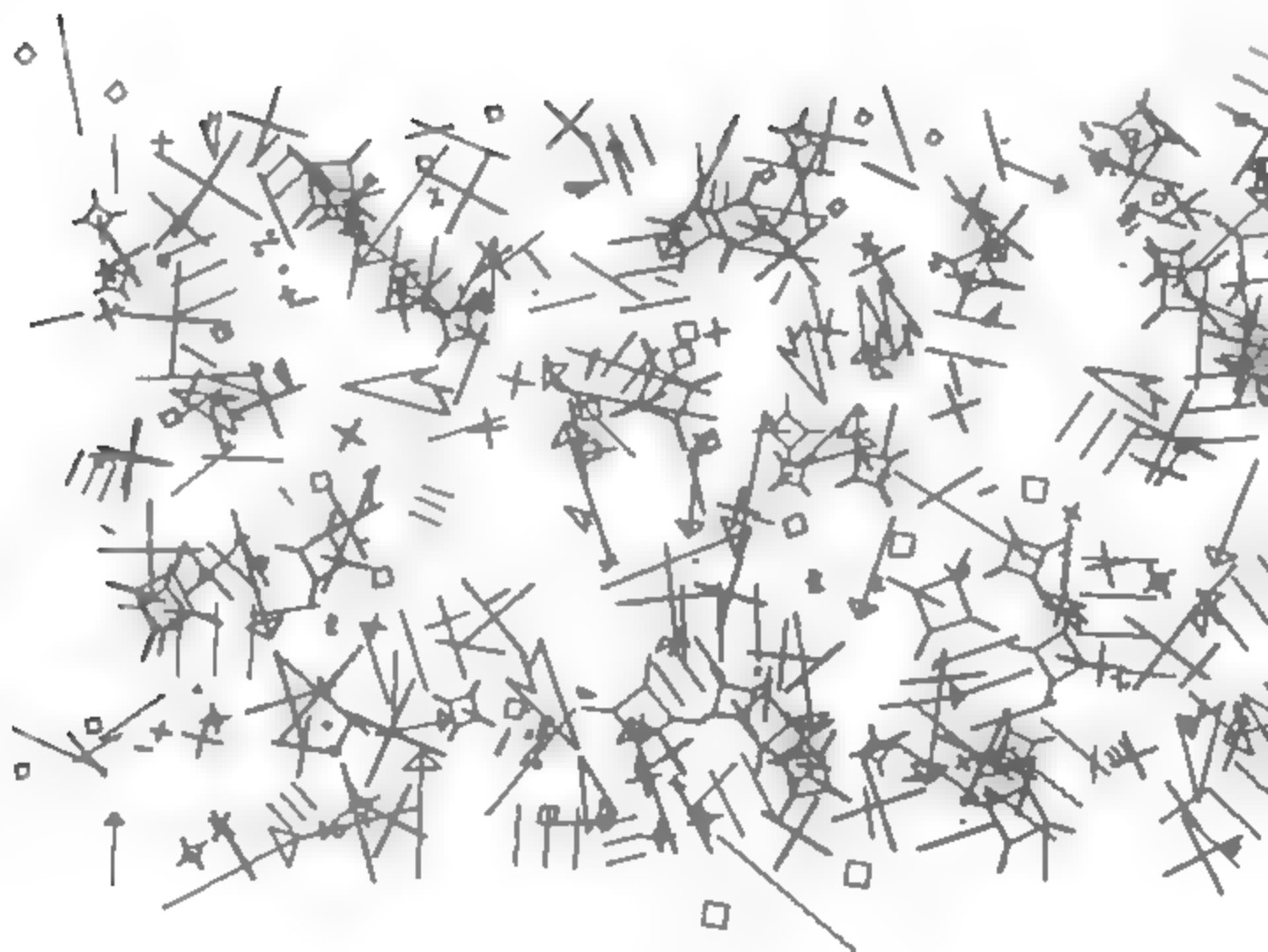
The artist, together with the computer as a performer
could accomplish very distinguished results.

their environment in many ways which are new.

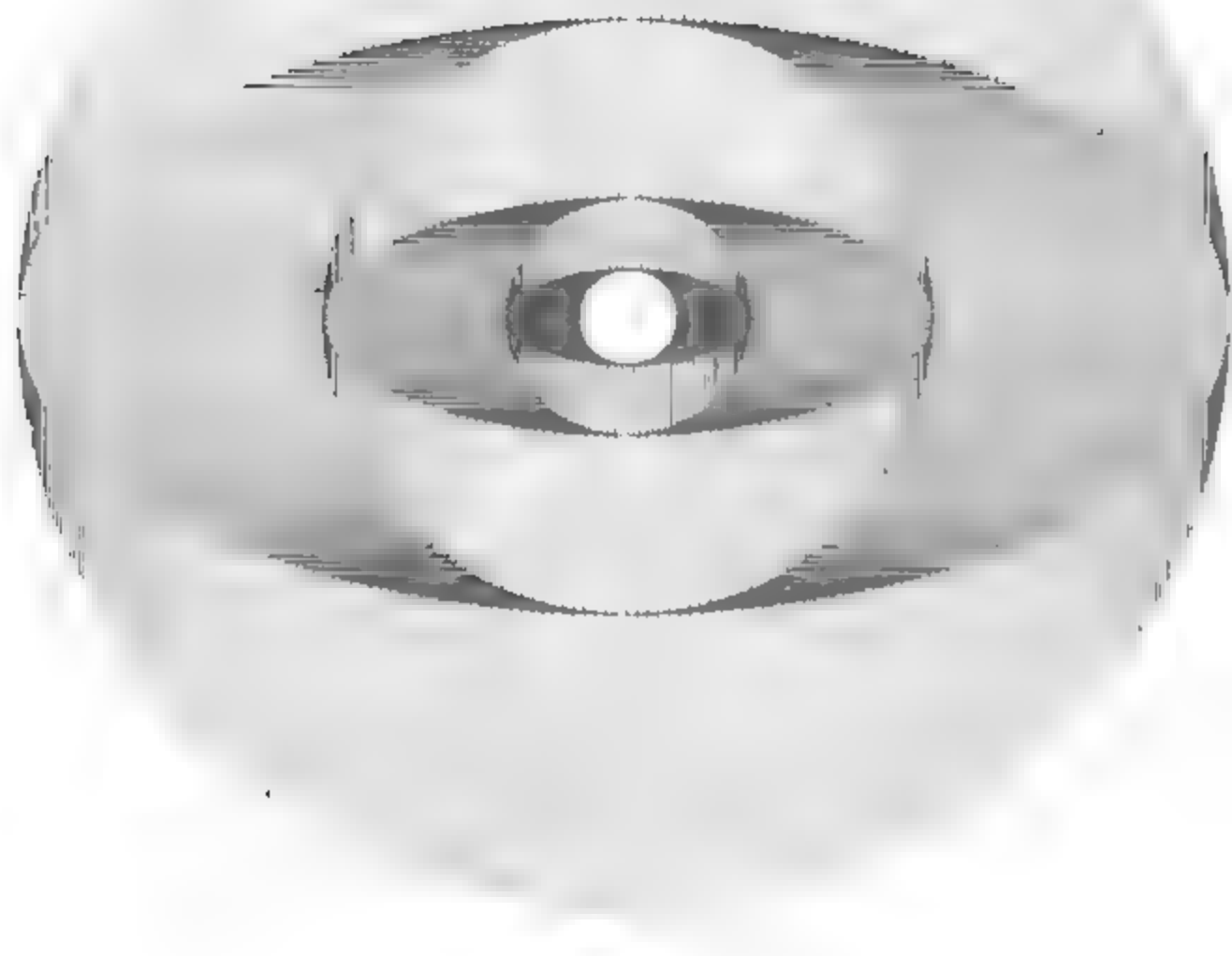
Computer revolution is a revolution of re-examination.
In art we are already asking, what is art? Could we
the use of compute

Is in its primitive period. There is a chance that it
cluster analysis, pattern recognition and artificial

... today has a long way to
Renaissance, Baroque and
will express more accurately
temporary men. It will not
get there, and it does not take a
ne to make this prediction.

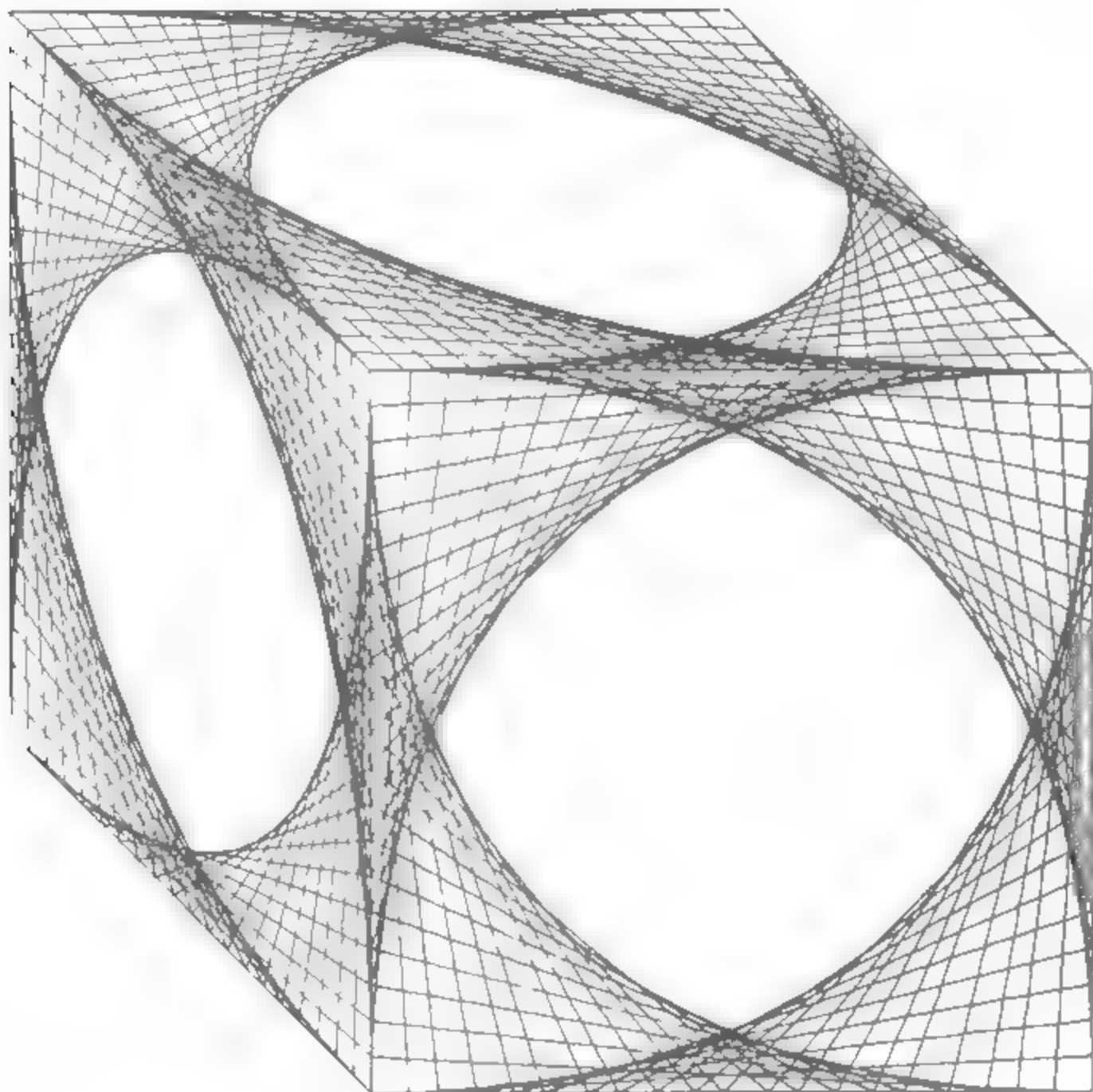


PETAR MILOJEVIC: Shattered glass
selected symbols drawn at random



PETAR MILOJEVIC: Ellipses and Circles

The generation of this artwork was done on the IBM 7044, and it was drawn on a Calcomp 565 plotter.



PETAR MILOJEVIC: Cubic Figure

These figures were obtained by connecting certain points on the sides of a cube, with the positions of the lines changed by translation or rotation. Drawn by Calcomp 565 plotter.

technique is not only unnecessary, but may be harmful for these subjects.

3. The western music as a whole can be grasped as a many

the impact of the video tape recorder cannot be over-

accompanying video part:

(a) Serial and electronic music

technical information of electronic sounds. In some score very hard, and this 'paper music' requires is impossible.

(b) Music graphic

In this other kind of 'paper music', sound and notation are far apart so that the imaginary double listener should know, for instance, that Tudor push the middle C for an apple figure in Cage's piano eats a nut for the same symbol. This fetishism of Fortran block diagram and is a stylistic criterion of the 20th century culture. Following the score in way to deterministic music.

(c) Event and action music

Often there is no way to make music notation except by recording the whole performance. Stockhausen and Ligeti suggested a film of my action music pieces (1959-61) to be used as a score, which I rejected for a philosophical reason. However, for many music events such as those by Brecht, Chiari, Christiansen, Hidalgo, Kosugi, Moore, Patterson, Schabel, Shigem, Tone, Welin, Young, video tape will be a useful supplement for their sketchy instructions.

4. Most singing students finish their full college course in the preparation of the opera which they studied so painstakingly. This kind of half time project for art self learners acting in the opera should not be reserved only for the most talented. It is a very good method of learning to sing and to act in the opera, and it is a very good method of learning to sing and to act in the opera, which results in the increased frequency of actual performances.

e.g. Le Traviata:

1st film is made without the soprano part, and used for the soprano part rehearsal.

2nd film is made likewise without the tenor part and used for the tenor part rehearsal.

3rd film - likewise without the baritone part.

4th film - likewise without the bass part.

The film can be projected onto four walls simultaneously to facilitate the acting lesson.

5. It is often said that in the big university the faculty is too busy to do anything but to do the job of the university, and that is the only way to do it.

e.g. Macbeth without Lady Macbeth

Hamlet without Hamlet

Romeo without Juliet

6. It is often said that in the big university the faculty is too busy to do anything but to do the job of the university, and that is the only way to do it.

7. It is often said that in the big university the faculty is too busy to do anything but to do the job of the university, and that is the only way to do it.

8. It is often said that in the big university the faculty is too busy to do anything but to do the job of the university, and that is the only way to do it.

6. French, German, Italian, Spanish, Russian, Chinese and Japanese TV should be shown constantly in the student gathering places. It helps language study, cultural exchange, deepens global consciousness, expands the horizon of a university, and helps the study of journalism, political science, arts, economics, etc.

An international catalogue of education, film and recorded tape at least, of music, art and philosophy, should be made, and a series held in progress. A series of lectures should be conducted on the remaining needs of the world, from amateur film fragments of 1930s France, to the 1960s, recently, such as the 1960s, 1960s, 1960s, 1960s, 1960s, etc., before it gets too late.

One should not forget one exchange promotes efficiency, and the elimination of work, and the elimination of work, which constitutes a main point of international operations philosophy. As business men's capital should turn over as fast as possible, so should resources should turn over as fast as possible.

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(a) Children are exposed to electronic situations very early.

(b) Electronic TV shows various basic facts of physics and electronics concretely, such as amplitude modulation, radar, scanning, cathode ray, shadow mask tube, oscilloscope, ohm's law, overtone, magnetic character, etc. and it is a very pleasant way to learn these important facts.

(c) It gives the possibilities of electronic. It is better than the light pen because my way is multi-coloured and it provides much interaction with the air programme.

(d) Since my colour TV is the unusual, unorthodox application of an every day commodity, this stimulates the kids to more original, less prejudiced thinking.

9. There is often a complaint made that a big microphone class kills the personality of the teacher, but this technique can be used in such a way that it not only amplifies the voice of the teacher, but also amplifies his whole personality. John Brockman Associates Inc. and USCQ used mix media techniques in the promotion of Scott Paper Company, with great success. It should also be tried in education.

10. How to prevent a slum kid, who would knock down even a teacher, from breaking an expensive teaching console?

(that is, a highly versatile input-output unit).

ing units. But if Computer Assisted Instruction proves to be economical and if it were to be spread to mass

deavour), then how would the console replace the

teacher's personality, especially to small children and unmotivated and less privileged kids from bad

actually as important as the so-called central proc

which does not agree with the computer's answer? Just

garde artist should be mobilised and put to work. Allan Kaprow is preaching, and has been for the last five years, to stone ears. Significantly enough, the President of Xerox announced a parallel opinion.

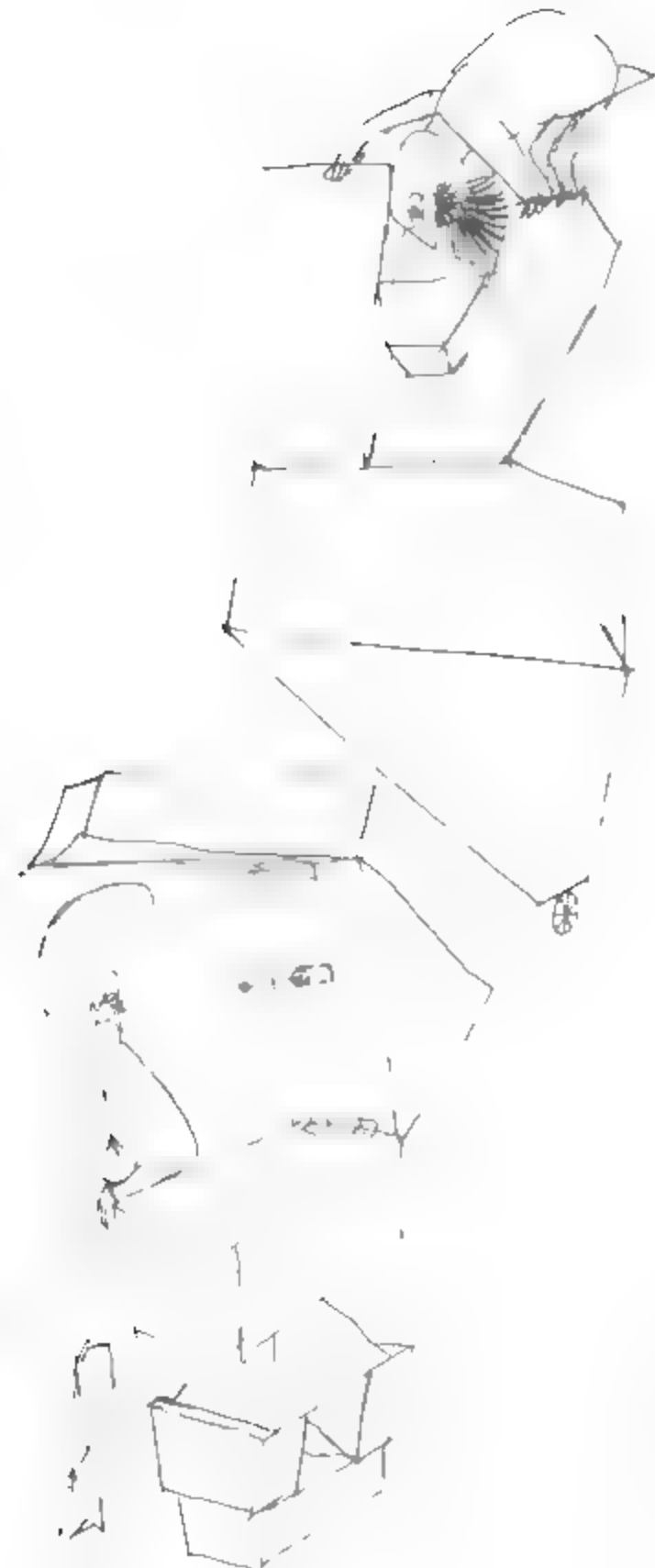
and profit was made in the hardware section (that is

will be more competitive with IBM. The artist is

electronic devices to wake up, stroboscopic light,

direct influence of brain waves, wind light-tactile devices, certain noise-refrigerator devices, etc., can be added, plus an electro sleep generator, to put a girl with insomnia to sound sleep. Serge Bouterline of Inter-Action Inc, is experimenting with several interesting devices in relation to this input-output problem. In teaching, even a robot should be considered for first and second grade children.

Sam June Paik
February 1968 New York



considered alternative courses of action, they then, sometimes, select or choose one of these

by Le Corbusier in Le Modulor

opposite page

top left Yet sometimes, a few times only in a man's life there comes through the chaos of his sensations something that has a special quality.

Denis Saurat, 'Modern French Literature'

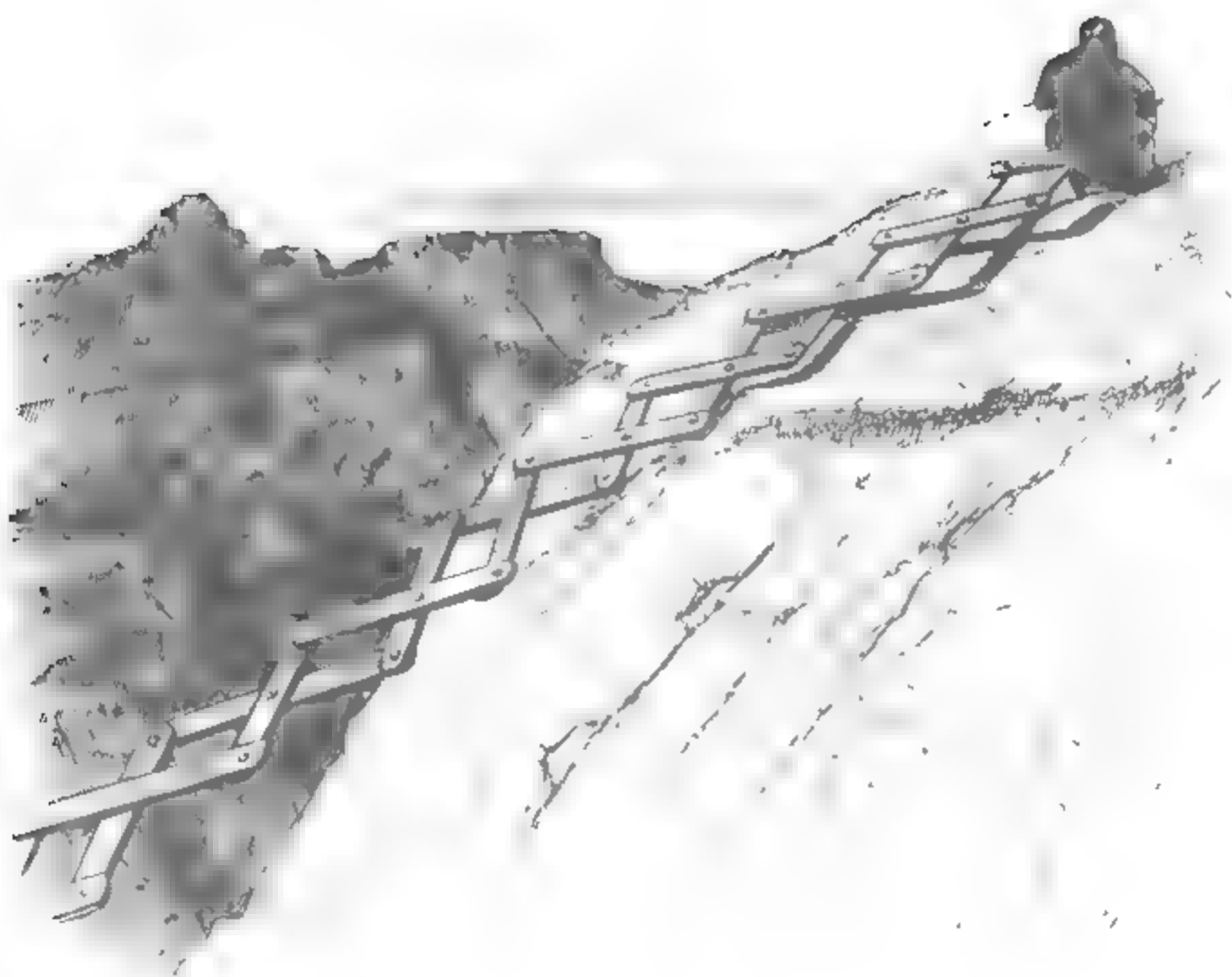
top right L'homme est la seule créature de la terre qui ait la volonté de regarder à l'intérieur d'une

quoted by Gaston Bachelard in La Terre et les Reveries du Repos

éprouvé dans ma vie. Cette qualité inconnue d'un monde unique. Marcel Proust, 'A la recherche du temps perdu'.

the sense that he does it on purpose or is trying to do it, his action certainly reflects some quality or qualities of mind, since (it is more than a verbal point to say) he is in some degree and in one fashion or another minding what he is doing. Gilbert Ryle, 'The Concept of Mind'





...to an increasing extent by the other basic motive of the desire to create things of beauty and ... for the satisfaction of doing it.

beauty and value, that is to do a job well for the satisfaction of doing it.

...then the tasks of the engineer are

... sub-human routine work. These are the robots or machine slaves.

... of natural beauty.

... of creative work for the individual.

... his lectures and essays on the subject.

Tuesday September 10th at 8pm

Dr. Gordon Pask
COMMENT ON JOY AND INNOVATION

... them aesthetically potent.

... to creativity.

There are, therefore, 10 'tactics' in all which each
 Thus the
 possible
 combinations simultaneously.

... .. a positive or
 negative number which, when added up, comprise the
 noted down in a double
 of the 10 horizontal and
 represent the
 and the vertical rail lines
 for conductor Y. The ...
 and vice versa. This table is called the 'Matrix of the
 Game'.

... .. of ...

, one after another,
 without interruption.

STRATEGIE

matrix of the game

STRAT EGIE

MATR. DES
 ELEMENTS
 DUBIL (VALEUR
 DUTON)

CURT X
 0-15

... ..

... ..

... ..

... ..

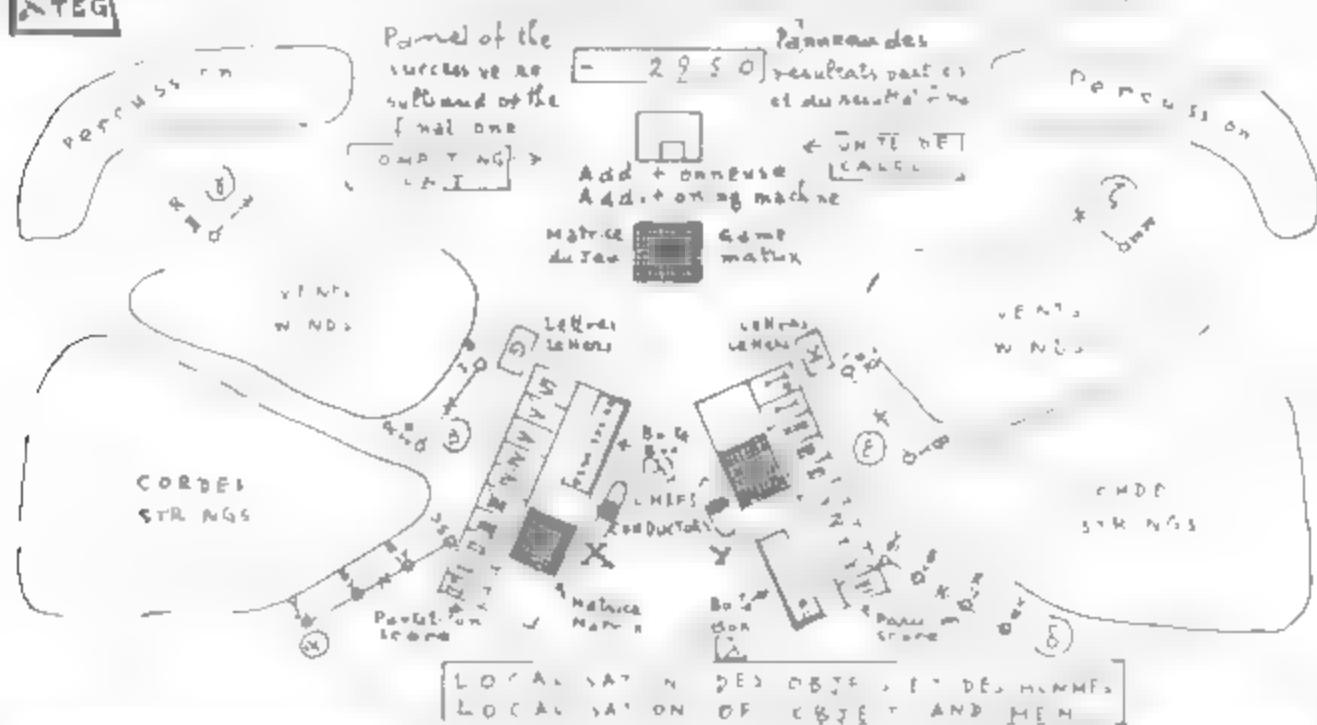
		Conducteur Y (10 1-10)																				
		I	II	III	IV	V	VI	VII	VIII	IX	X	1	2	3	4	5	6	7	8	9	10	
I	116	10	84	40	4	-52	60	40	112	40	8	36	28	36	46	102	120	-30	32	8	3	
II	54	96	44	24	24	52	50	36	72	80	6	48	20	16	10	34	-16	-20	40	3	3	
III	-110	2	96	96	24	0	4	-56	32	-20	0	-52	88	40	16	40	-16	20	72	1	1	
IV	0	20	24	84	4	-12	12	-12	28	8	0	24	-40	4	22	-10	-16	28	-16	0	0	
V	10	104	-86	4	-104	8	40	20	8	4	8	-8	36	-24	-16	40	0	20	-20	1	1	
VI	24	44	12	-8	6	66	24	0	24	4	24	40	52	40	24	44	4	4	-48	3	3	
VII	-36	-52	20	16	36	40	40	0	-32	48	0	46	16	-12	-20	-40	-44	16	40	0	0	
VIII	24	-32	-8	-52	8	12	4	4	48	-44	-12	8	52	4	8	32	-36	-40	-16	24	3	3
IX	36	10	-16	32	2	4	-44	-52	52	40	2	48	18	64	24	22	-36	-28	52	1	1	
X	48	22	22	4	4	32	-46	16	8	-36	-24	-4	8	32	34	4	8	20	-32	0	0	
1	4	24	26	4	4	28	36	12	20	4	64	68	4	60	12	2	-24	22	-32	10	10	
2	28	-36	-196	-188	-28	-34	42	16	32	24	0	32	74	76	4	4	-32	-28	40	76	3	3
3	10	164	-10	42	-40	52	-44	14	-16	4	38	-14	80	72	-16	58	40	-18	38	42	2	2
4	32	-16	-54	0	32	52	36	12	-12	36	34	28	42	76	-44	-44	10	29	12	6	6	
5	20	8	4	28	-28	14	0	20	3	4	32	14	26	56	46	-36	12	8	14	4	4	
6	18	88	88	104	-28	20	16	2	-16	20	-20	-50	26	8	36	40	108	34	-32	60	9	9
7	104	32	32	52	-28	16	0	-44	-48	32	0	16	-16	20	32	34	-30	96	52	-36	6	6
8	104	-36	-24	8	4	0	-2	52	78	-12	-4	36	8	28	24	-16	14	42	12	-40	9	9
9	10	52	52	66	4	6	6	-4	44	-66	-4	44	12	44	40	16	-46	44	42	32	4	4
10	1	1	2	3	2	11	3	3	4	6	9	1	5	3	10	4	4	8	10	100		

PLANS OF DISPOSITION AND SIGNALLING SYSTEM

47 PAT

DESIGN DE CALCUL ET DE SIGNALISATION: [CHEFS → ORCHESTRES → CALCUL] → PUBLIC

SYSTEMS FOR COMPUTATION AND FOR INFORMATION [CONDUCTORS AND ORCHESTRATORS FOR COMPUT. & PUBLIC



SIGNIFICATION OF THE COLORS

OF THE COLORS		Factor 1	Factor 2	Factor 3
Amperes, Bulbs		Order	Watts	Feet
Y	Jaunes Yellow	VI		
B	Bleues Blue	V	I	
R	Rouges Red	IV	I ^o	II
V	Verdes Green	I		
W	Blanches White			

Prendrez-vous
pour la tactique m
Have yourself ready
to play tactic m
I want to tactic m
Play tactic m

Boîtes de commande élect.
(instructions)
(sound-proof) Boxes
for instructions

$\left. \begin{array}{l} \text{chef } X \\ \text{conductor } X \end{array} \right\} \xrightarrow{\text{power for}} \left\{ \begin{array}{l} \text{chef } Y \\ \text{conductor } Y \end{array} \right.$

Les interrupteurs sont connectés en série de 5 3 2, l'activation des ampoules de couleur ainsi que des blanches s'obtient par les interrupteurs Z correspondants.

The 5m red-buttons are coupled by series of 5, 3, 2; the extinction of the coloured or white bulb is realized through the corresponding 5m tubes Z.

KOMMANDE ELECTRIQUE
ELECTRIC COMMAND

Thursday September 19th at 8pm

Reverend A.Q. Morton

THE COMPUTER AS AN AID TO LITERARY STUDIES

how the machine reads literature and how it makes all kinds of indexes and word lists. Then it describes these lists, even how one can check if Aristotle really

'My claim to fame in this field' - writes Morton - 'is that I was the first to use the computer on literary used marks before this, let X equal one word, but I a print of the actual texts. Especially for Greek.'

investigation of the Homeric poems.

Tuesday September 24th at 8pm

Pietro Grossi

THE COMPUTER IN MUSIC

Musicale di Firenze).

Thursday September 26th at 8 pm

Professor Abraham Moles

THE SOCIAL IMPLICATIONS OF ART WITH COMPUTERS

creative activity.

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Permanent collection of
modern jewellery

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thames and hudson

the publishers of books on modern art

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BARBARA HEPWORTH

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thames and hudson

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493-6646

Kim Lim
Sculptures
Sept 12 - October

GREENWICH THEATRE ART GALLERY
Crooms Hill, S.E.10.
858-7755

Richard Robbins
paintings, drawings, models
September 12 - October
10-6 daily (incl. Saturdays
and Sundays) closed Mondays

DRIAN GALLERIES
5-7 Porchester Place, W.2.
723-9473

John Davies, sculpture
Susanne Levy, paintings
until September 13

Rudolf Scheuter, sculpture
Adele White, paintings
September 17 - October 4

GROSVENOR GALLERY
30 Davies Street, W.1.
629-0891

20th c. Painting and Sculpture
Part 2: Appel, Baj, Burliuk,
Casella, Consagare, Cremonini,
Guttuso, Hartung, Hepworth,
Lissitzky, Maholy-Nagy, Music,
Permeke, Rabin, Sironi, Tobey.
August 28 - September 21

GIMPEL FILS
50 South Molton Street, W.1.
493-2488

Robert Adams - sculpture
September 5 - 28

HANOVER GALLERY
32a St. Georges Street, W.1.
629-0226

Sculpture and drawings
September

GRABOWSKI GALLERY
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536-1868

100th Exhibition of the
gallery until September 28

ANNELY JUDA, FINE ART
11-12 Tottenham Mews
off Charlotte Street, W.1.

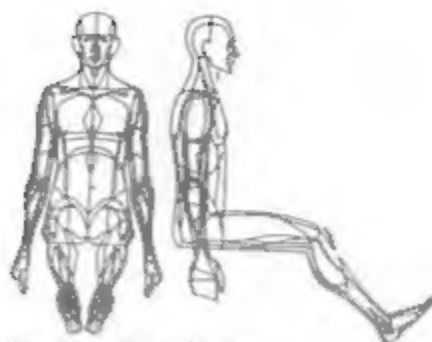
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Saturday 10-1

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Millbank

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'Cybernetic Serendipity' provokes, in its implications, it is as different from an every day 'art exhibition' as a major operation from a manicure... it is an experience which no one should miss. John Russell, The Sunday Times

CYBERNETIC

The winking lights
the flickering television screens
and the squawks from the music machines
are signalling the end of abstract art;
When machines can do it,
it will not be worth doing -
Robert Melville, New Statesman

Gasia Reichardt asked
Norman
to design the cover
Institute of Contemporary Arts

I could do a drawing depicting
some whimsical comment.
to me was to describe in
some of the things that
in the organizing of this exhibition. For example
were some three hundred and twenty
persons involved to make this show
days to bring it to fruition. Some
and more than

A joyous exhibition.
It demonstrates that art
can live with modern science.
Daily Mirror

Where in London could you take
a hippy
a computer programmer
a ten-year-old schoolboy
and guarantee that each would be
perfectly happy for an hour
without you having to lift a finger
to entertain them. From today,
there is just one such place -
The Institute of Contemporary Arts.
The Evening Standard

attended the
With this information
more than enough to
decided to do

I think that
be able not so
our concepts
widen immeasurably
of what is not
Alexander Weather

The Industrial revolution
produced the machine age,
with the computer
comes machine age art.
The Evening News